REMARKS

This case has been carefully reviewed in light of the Office Action dated 22 June, 2002, wherein claims 1-5,7-10,12,15-20 were rejected under 35 USC 102(e) as being anticipated by Behrens (US 6,434,340). Claims 6,11,13,and 14 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In this amendment, claims 1-3, 5, 7, 8, 10, 12-14, 16, 17, 18 and 19 have been amended. No new matter has been added. Claims 6 and 11 have been canceled.

Claims 1-3, 5, 7, 8, 10, 12-14, 16, 17, 18 and 19 have been amended to define the patentable subject matter more clearly. No new matter has been added. Applicant respectfully submits that the amended claims bring out the distinction between the Applicant's invention and Behrens (US 6,434,340), which has been cited by the Examiner under 102 (e). Withdrawal of the rejection is respectfully requested, and allowance of claims 1-20 is respectfully solicited.

Applicant respectfully traverses the rejection of claims 1-5, 7-10, 12, 15-20 under 35 USC 102(e) over Behrens (US 6,434,340). It is respectfully submitted that the present invention as recited in the amended independent claims 1, 7, 12, 17, 18 and 19, and claims depending therefrom, is not anticipated by the applied reference.

The present invention, as recited in amended independent claims 1, 7,12, 17, 18 and 19, is particularly well-adapted for provide a part marking which can be simultaneously read by both humans and computers (or other detector apparatus). The Applicant's invention has an advantage that it eliminates the need to have two separate markings, one readable by humans and the other readable by a computer to be put on a part for its identification.

Applicant respectfully submits that the applied reference does not disclose, teach or suggest the simultaneous human and machine-readable aspect of the Applicant's invention. Behrens' technique merely makes use of the human ability to read letters printed in colors, textures or patterns as long as the contrast between the letter and the background is adequate. In addition the device of Behrens also prints a separate 2D pattern which is machine readable. Thus a pair of distinct markings is used in Behrens' technique, which represents an issue in the art, which is solved by the Applicant's invention, which uses one set of markings that are recognized simultaneously by humans and machines. For example, Behrens does not disclose, teach or suggest, the claim 1 recitation of "a part marking comprising at least one multiplicity of **machine-detectable marks** arranged in accordance with two-dimensional redundant bit patterns,

said at least one multiplicity of marks having an appearance to **human vision r sembling** at least one character"; the claim 7 recitation of "a part marking comprising a plurality of **human-readable characters** formed in respective areas containing respective arrays of **machine detectable marks** "; the claim 12 recitation of "each of said respective multiplicities of **machine-detectable marks** having an appearance **to human vision resembling a respective character**"; the claim 17 recitation of "respective **human-readable characters** in respective areas on said part by applying respective arrays of **machine-detectable marks** arranged in two-dimensional redundant bit patterns"; the claim 18 recitation of "marking a part with respective **human-readable** character-shaped arrays of **machine-detectable** marks", and claim 19 recitation of "a part marked with respective **human-readable** character-shaped arrays of **machine-detectable** marks".

Applicant respectfully submits that the above recitations in amended independent claims of the Applicant's application are not disclosed, suggested or taught by Behrens. Accordingly, Applicant respectfully submits that the claimed invention, as recited in independent claims 1, 7, 12, 17, 18 and 19 defines allowable subject matter over the applied art. Withdrawal of the rejections is respectfully requested, and allowance of claim 1, 7, 12, 17, 18, and 19 is respectfully solicited.

Claims 2-6 depend directly or indirectly from claim 1. Claims 8-11 depend directly or indirectly from claim 7, claims 13-16 depend directly or indirectly from claim 12, and claim 20 depends from claim 19. Applicant respectfully submits that claims 1, 7, 12 and 19 are patentably distinct from the applied reference for the reasons discussed above and that claims 2-6, 8-11, 13-16 and 20 are similarly allowable over the applied references.

In view of the foregoing, Applicant respectfully submits that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact Applicant's undersigned representative at the telephone number below.

Respectfully submitted,

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Attachment: Amended Claims

Attachment

CLAIMS (Marked-up version):

1(amended). A part marking comprising [a first] at least one multiplicity of machine-detectable marks [(4)] arranged in accordance with [a] two-dimensional redundant bit patterns, said [first] at least one multiplicity of marks having an appearance to human vision resembling at least one [first] character [(6)], and said two-dimensional redundant bit patterns comprising [a] repeating patterns of [first and second] a bit string[s] forming a respective machine readable [respective first and second] code[s] corresponding to [identifying]said [first]at least one character [and a second character [(6')] respectively, said second character being different than said first character].

2. (amended) The part marking as recited in claim 1, further comprising a [second multiplicity] plurality of respective multiplicities of machine-detectable marks [(4)] arranged in accordance with said two-dimensional redundant bit patterns, [said] each of said respective [second] multiplicity of marks having an appearance to human vision resembling [said] a respective character [a second character].

3.(amended) The part marking as recited in claim 2, further comprising machine-detectable respective [first and second] spatial registration indicators placed such that each of said respective [said first and second] multiplicities of machine-detectable marks are combinable by aligning said respective spatial registration indicators such that said respective combined multiplicity of marks remain machine detectable. [will be spatially registered when said first and second spatial registration indicators are spatially registered.]

5. (amended) The part marking as recited in claim 1, wherein said [first and second] code[s] [are] is ASCII code[s].

7.(amended) A part marking comprising a plurality of [first and second] human-readable characters [(6, 6')] [respectively] formed in respective [first and second]areas containing [occupied by first and second]respective arrays of machine detectable marks[(4)], each of said array of machine-detectable marks arranged in accordance with [a] two-dimensional redundant bit patterns, each of said arrays of machine-detectable marks in said [first and second]respective areas [respectively] having [first and second] shapes indicative of said [first and second] human-readable characters [respectively], and each of said two-dimensional redundant bit patterns comprising a repeating pattern of a [first and second] bit string[s] forming respective [first and second]machine detectable codes corresponding to [identifying] said [first and second] human-readable characters [

8

respectively, said second human-readable character being different than said first human-readable character].

8.(amended) The part marking as recited in claim 7, further comprising machine-detectable respective[first and second] spatial registration indicators [(18)] formed in said respective [said first and second] areas [respectively] and placed such that each of said respective [said first and second] arrays of machine-detectable marks are combinable by aligning said respective spatial registration indicators such that said respective combined multiplicity of marks remain machine detectable. [will be spatially registered when said first and second spatial registration indicators are spatially registered].

10.(amended) The part marking as recited in claim 7, wherein said [first and second] codes are ASCII codes.

12.(amended) A system for automatic identification of a part, comprising:

a part (8) comprising a plurality of respective[first and second] multiplicities of machine-detectable marks [(4)] arranged in accordance with [a] two-dimensional redundant bit patterns, each of said respective [said first and second] multiplicities of machine –detectable marks [(4)] having an appearance to human vision resembling a respective character[first and second characters] [(6, 6')] [respectively], and said two-dimensional redundant bit patterns comprising a repeating pattern of a [first and second]bit string[s] forming respective [first and second] codes [identifying]corresponding to said respective character [first and second characters respectively, said second character being different than said first character];

an imager [(10)] for imaging an area of said part occupied by said marks to produce electrical signals having characteristics which allow discrimination between electrical signals derived from imaging of marks and electrical signals derived from imaging of areas outside of marks; and

a computer [(16)] programmed to derive said first and second codes from said electrical signals output by said imager.

13.(amended) The system as recited in claim 12, wherein said computer is programmed to perform the steps of:

digitizing said electrical signals to form [first and second] respective bit maps, [respectively] comprising bits corresponding to each of said respective [first and second] multiplicities of machine-detectable marks;

spatially registering said respective [first and second] bit maps;

forming a union of said spatially registered <u>respective</u> bit maps; and

detecting bit strings, corresponding to said [first and second]<u>respective</u> codes, in the composite bit map resulting from the union of said spatially registered <u>respective</u> [first and second] bit maps.

14. (amended) The system as recited in claim 13, wherein said part further comprises machine-detectable <u>respective</u> [first and second] spatial registration indicators [(18)] placed such that <u>each of</u> said <u>respective</u> [first and second] multiplicities of machine-detectable marks <u>are combinable by aligning said respective spatial registration indicators such that said respective combined multiplicity of marks remain machine detectable</u>[will be spatially registered when said first and second spatial registration indicators are spatially registered].

16. (amended)The system as recited in claim 12, wherein said [first and second] codes are ASCII codes.

17.(amended) A method of marking parts for automatic identification, comprising the steps of forming [first and second]<u>respective</u> human-readable characters [respectively] in <u>respective</u> [first and second] areas on said part by applying <u>respective</u> [first and second] arrays of machine-detectable marks arranged in [a] two-dimensional redundant bit pattern<u>s</u>, <u>each of said respective</u> [said first and second] arrays of machine-detectable marks [respectively] having <u>respective</u> [first and second] shapes indicative of <u>each of said respective</u> [said first and second] human-readable characters [respectively], and said two-dimensional redundant bit pattern<u>s</u> comprising a repeating pattern of <u>a respective</u>[first and second] bit string[s] forming <u>respective</u> [first and second] codes <u>corresponding to</u> [identifying] <u>each of said respective</u> [said first and second] human-readable characters [respectively, said second human-readable character being different than said first human-readable character].

18. (amended) A method of automatically identifying parts, comprising the following steps:

marking a part with <u>respective</u> [first and second] <u>human-readable</u> character-shaped arrays of <u>machine-detectable</u> marks;

acquiring an image of said part marking;

digitizing the acquired image to form <u>respective</u> [first and second]bit maps comprising bits corresponding to <u>each of</u> said <u>respective human-readable</u> [first and second] character-shaped arrays of <u>machine-detectable</u> marks;

spatially registering said respective[the first and second] bit maps;

forming a union of said respective[the] spatially registered bit maps; and

decoding the composite bit map resulting from the union of each of said respective[the] spatially registered bit maps to identify the part.

19. (amended) A system for automatically identifying parts, comprising:

a part (8) marked with respective [first and second] human-readable character-shaped arrays of machine-detectable marks [(4)];

an imager [(10)] for acquiring an image of said part marking; and

a computer [(16)] programmed to perform the following steps:

digitizing the acquired image to form respective [first and second] bit maps comprising bits corresponding to each of said respective[first and second] human-readable character-shaped arrays of machine-detectable marks;

spatially registering each of said respective [the first and second]bit maps;

forming a union of said respective [the] spatially registered bit maps; and

decoding the composite bit map resulting from said [the] union of the spatially registered bit maps to identify said part.